

said swivel joint further comprises an annular seal having an outer sealing surface received in said seal groove thereby sealing against the inner circumferential surfaces of said recessed inner annular portions of said male and female connectors, said seal having an inner surface generally flush with said flow passage.

12 22. A swivel joint according to claim 11, further comprising:
an annular seal positioned between the first end and the inner annular shoulder.

13 23. A swivel joint according to claim 10, further comprising:
a first recessed section formed in the male connector adjacent the first end and a second recessed section formed in the female connector adjacent the inner annular shoulder, the first and second recessed sections forming a recessed groove when the male connector is received in the female connector;
and

an annular seal positioned within the recessed groove. - -

Remarks

Reconsideration of the above-referenced application is respectfully requested.

The Examiner has objected to the disclosure because element numbers 33-36 are not discussed in the specification. However, these numbers appearing in the drawings are not reference numbers. Rather, they are numbers indicating the number of ball bearings received within each respective race. To

avoid confusion, applicants propose to delete these numbers from the formal drawings.

The disclosure was also objected to because the word "closest" was mistakenly typed as "closes" at line 22 of page 3. This mistake has been corrected herein.

Claims 4 and 5 were objected to because their preambles were not consistent with that of claim 1. Claims 4 and 5 have accordingly been amended to correct their preambles.

After further consideration, applicants have determined that the Examiner's previous rejection of claims 1, 19 and 20 under 35 U.S.C. § 103 as being unpatentable over Phillips or Ashton in view of Himes was improper. Accordingly, in claims 1 and 19 applicants have deleted the limitations relating to the seal between the male and female connectors.

The Examiner has improperly combined Himes with Phillips and Ashton in formulating the subject obviousness rejection. Himes is not analogous with the art of applicants' invention. In addition, assuming arguendo that Himes is analogous, no motivation exists in any of these references to combine Himes with Phillips or Ashton.

The Federal Circuit has promulgated a two step test for determining whether a particular reference is analogous to the applicant's invention: (1) whether the reference is from the same field of endeavor, regardless of the problem addressed; and (2) if the reference is not within the inventor's field of endeavor, whether the reference still is reasonably pertinent to the particular

problem with which the inventor is involved. See In re Clay, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992). There can be no doubt that Himes is not from the same field of endeavor as applicants' present invention. Applicant's invention is directed to swivel joints for coupling fluid conducting pipes which are used in, for example, the petroleum industry. Himes, on the other hand, concerns bearing assemblies for machine tools in which the parts are running at high speeds, or where excessive loads occur, or where the spindle is required to operate with accuracy (see page 1, lines 46-58 of Himes). Thus, applicants' field of endeavor is fluid handling equipment, whereas Himes' field of endeavor is machine tools. Therefore, in the present case, Himes fails the first step of the Federal Circuit's test.

Addressing the second step of this test, Himes also is clearly not reasonably pertinent to the particular problem with which the applicants are involved. Applicants' inventive swivel joint addresses the problem of the deformation or brinelling of the ball races in high pressure applications (see page 1, lines 16-21 of the application). The speed of rotation of the swivel joint is not an issue, because these joints are typically rotated manually. To the contrary, Himes specifically addresses the problem of seizing or chatter in high speed applications (see page 1, lines 20-29 and 59-81 of Himes). Furthermore, applicants' swivel joint and Himes' machine tool are not structurally similar. Applicants' swivel joint connects hollow tubulars; while Himes' bearing assembly supports a solid spindle. These differences weigh against a finding of analogy. See In re Clay 23 USPQ2d at 1061. In short, a person having ordinary skill in

the art of designing fluid handling equipment would not reasonably have expected to solve the problem of ball race deformation or brinelling by considering a reference dealing with eliminating seizing and chatter in bearing assemblies.

Thus, Himes is not analogous to applicants' field of invention. Therefore, the rejection of claims 1, 19 and 20 over Phillips or Ashton in view of Himes should be reversed.

Moreover, no motivation exists in any of the references cited by the Examiner, or the prior art in general, to combine Himes with Phillips or Ashton. According to the Federal Circuit:

There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself.

In re Oetiker, 24 USPQ2d 1443, 1446 (Fed. Cir. 1992). In the present case, nothing in the prior art would suggest applying the stepped bearing configuration of Himes with the fluid handling swivels of either Phillips or Ashton.

In Phillips, the purpose of the ball bearing means 13, 14 is simply to rotationally connect end sections 11, 12 with the body 10 (column 1, lines 37-42). Indeed, Phillips relates to a hose reel for connecting a multiple of hoses, and there is no mention in Phillips of any limitations with the bearing means 13, 14 in achieving this general purpose. Moreover, Phillips does not mention any high speed applications of his hose reel that could result in problems with the

bearing means 13, 14 similar to those discussed by Himes. Therefore, one of ordinary skill in the fluid handling art would not be motivated to use the bearing arrangement of Himes in Phillips.

Similarly, the fluid loading arm assembly of Ashton employs several swivel assemblies for connecting individual conduits, but Ashton specifically states that these swivel assemblies may take any desired form (column 2, lines 46-50). Moreover, it is apparent that Ashton's swivel joints are not subjected to high rotational speeds that could result in problems with the swivel assemblies similar to those discussed by Himes. Therefore, one of ordinary skill in the fluid handling art would not be motivated to use the bearing arrangement of Himes in Ashton.

In addition, the Examiner has failed to point to any other prior art which would suggest the combination of Himes with Phillips or Ashton. For example, nothing in the prior art suggests the general superiority of a stepped bearing configuration, such as disclosed in Himes, for swivel joints. In the absence of such a suggestion, we can only assume that none exists.

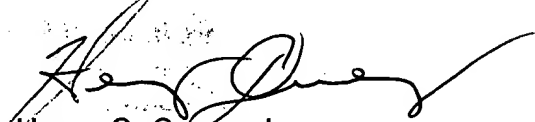
Thus, it is apparent that the combination of Himes with either Phillips or Ashton is not suggested by the prior art. Therefore, the rejection of claims 1, 19 and 20 over Phillips or Ashton in view of Himes should be reversed.

The remaining rejections are based on the foregoing rejections of claims 1, 19 and 20 under 35 U.S.C. §103 as being unpatentable over Phillips or Ashton in view of Himes. As discussed above, this rejection is improper.

Therefore, applicants submit that the remaining rejections are also improper and should be reversed.

For the foregoing reasons, claims 1, 4-5 and 12-23 are submitted as allowable. Favorable action is solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Henry C. Query, Jr.", written over a horizontal line.

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